What is claimed is:

1. A signal relay circuit for relaying a digital signal transmitted from a signal generating unit to a signal receiving unit and having a first potential level and a second potential level that is higher than said first potential level, said circuit comprising:

a capacitor connected between said signal generating unit and said signal receiving unit for receiving digital signal, eliminating a DC component from said digital signal as received, and outputting the digital signal, from which said DC component is eliminated, to said signal receiving unit as a restored digital signal;

a first resistor having one terminal connected to a power supply which pulls up the potential of said restored digital signal as received from said capacitor and the other terminal connected to a relay point between said capacitor and said signal receiving unit, and having a resistance value with which a current flowing through said first resistor is smaller than an output current of said first potential level from said signal generating unit; and

a second resistor having one terminal connected to said relay point and the other terminal connected to a ground potential, and having a resistance value with which a current flowing through said second resistor is smaller than an output current from said signal generating unit having said second potential level.

2. The signal relay circuit as claimed in claim 1 wherein

the resistance value of said second resistor is selected in order that the maximum value of said first potential level is not exceeded by the voltage drop due to a leakage current that is flowing from said signal receiving

unit into said ground potential.

3. The signal relay circuit as claimed in claim 1 wherein when the power voltage of said signal receiving unit is equal to that of said power supply,
the resistance value of said first resistor is equal to that of said second resistor.

4. The signal relay circuit as claimed in claim 1 wherein when a transmission line is provided between said signal generating unit and said capacitor,
the capacitance value C of said capacitor is selected to satisfy the relational equation,

$$C = \omega^{-1}(Z_0^2 - R_Z^2)^{-1/2}$$

where R_Z is the combinational resistance value of said transmission line and said capacitor, Z_0 is the impedance of said transmission line, f is the frequency of said digital signal, and ω is the angular frequency $2\pi f$.